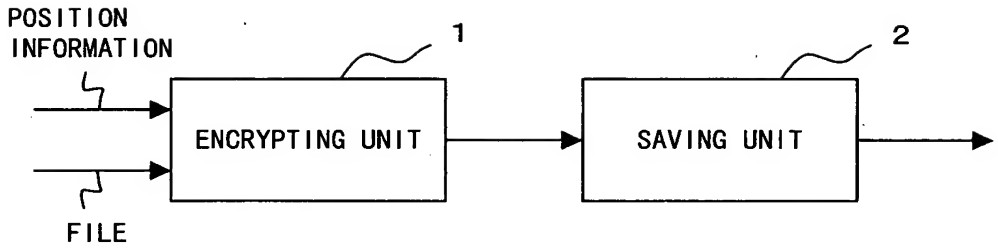
POSITION
INFORMATION
1
2
ENCRYPTING UNIT
SAVING UNIT
FILE

FIG. 1A

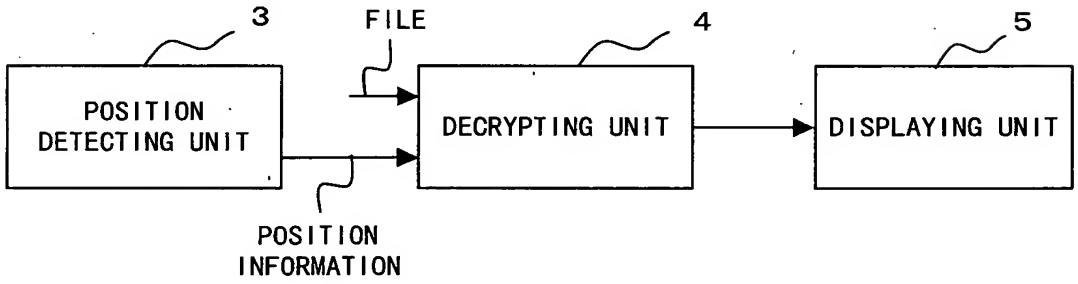
3
FILE
4
5
POSITION
DETECTING UNIT
DECRYPTING UNIT
DISPLAYING UNIT
POSITION
INFORMATION

FIG. 1B

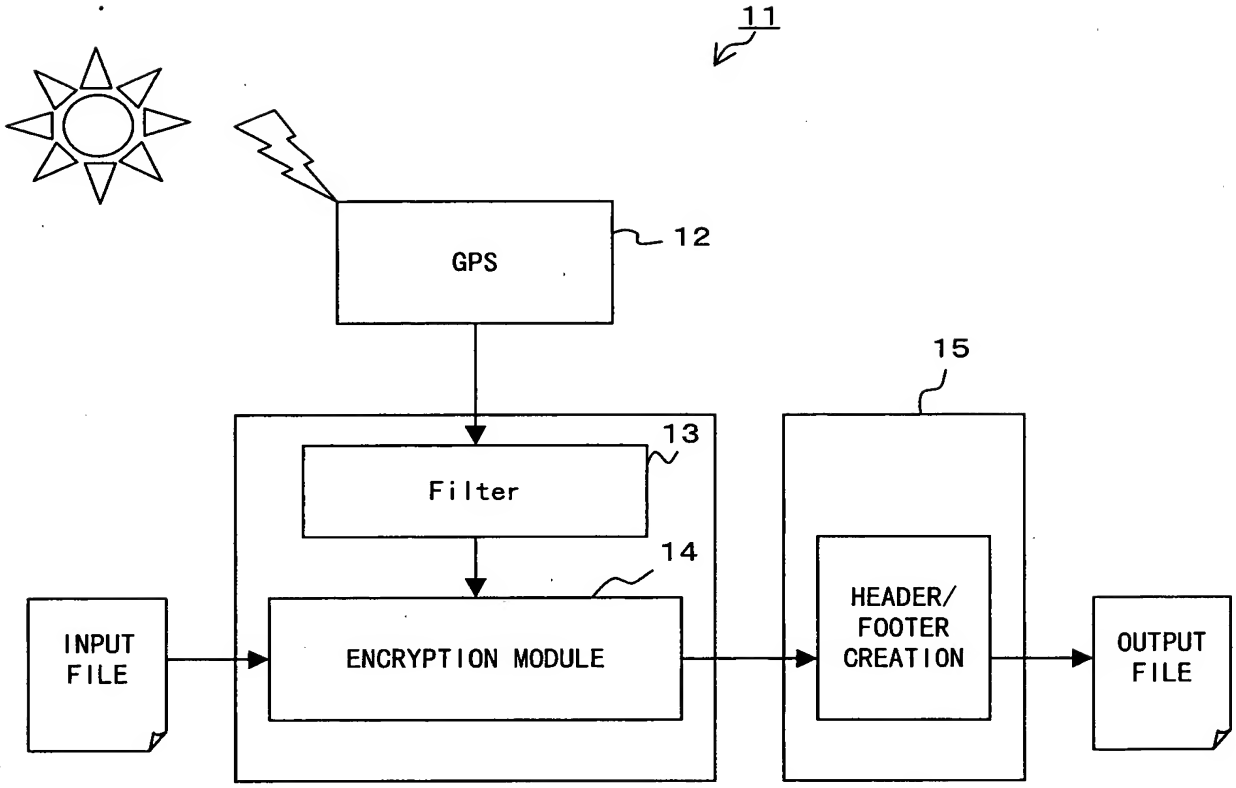
11
GPS
12
15
13
Filter
14
INPUT FILE
ENCRYPTION MODULE
HEADER/ FOOTER CREATION
OUTPUT FILE

FIG. 2

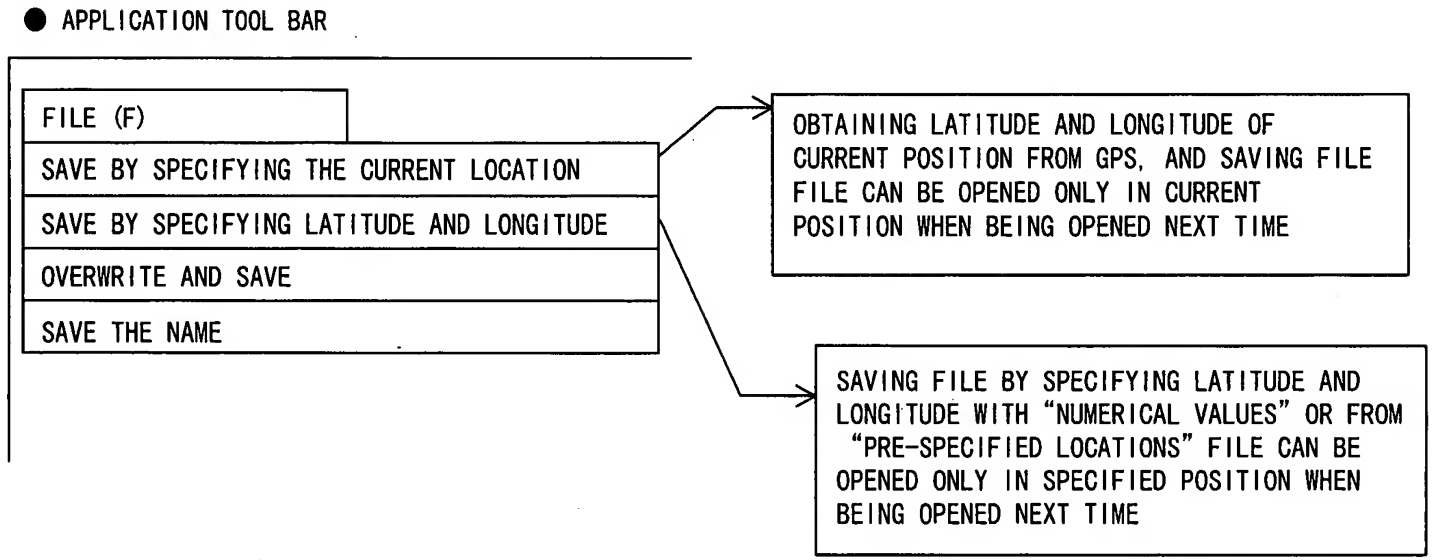
● APPLICATION TOOL BAR
FILE (F)
SAVE BY SPECIFYING THE CURRENT LOCATION
SAVE BY SPECIFYING LATITUDE AND LONGITUDE
OVERWRITE AND SAVE
SAVE THE NAME
OBTAINING LATITUDE AND LONGITUDE OF CURRENT POSITION FROM GPS, AND SAVING FILE FILE CAN BE OPENED ONLY IN CURRENT POSITION WHEN BEING OPENED NEXT TIME
SAVING FILE BY SPECIFYING LATITUDE AND LONGITUDE WITH "NUMERICAL VALUES" OR FROM "PRE-SPECIFIED LOCATIONS" FILE CAN BE OPENED ONLY IN SPECIFIED POSITION WHEN BEING OPENED NEXT TIME

FIG. 3

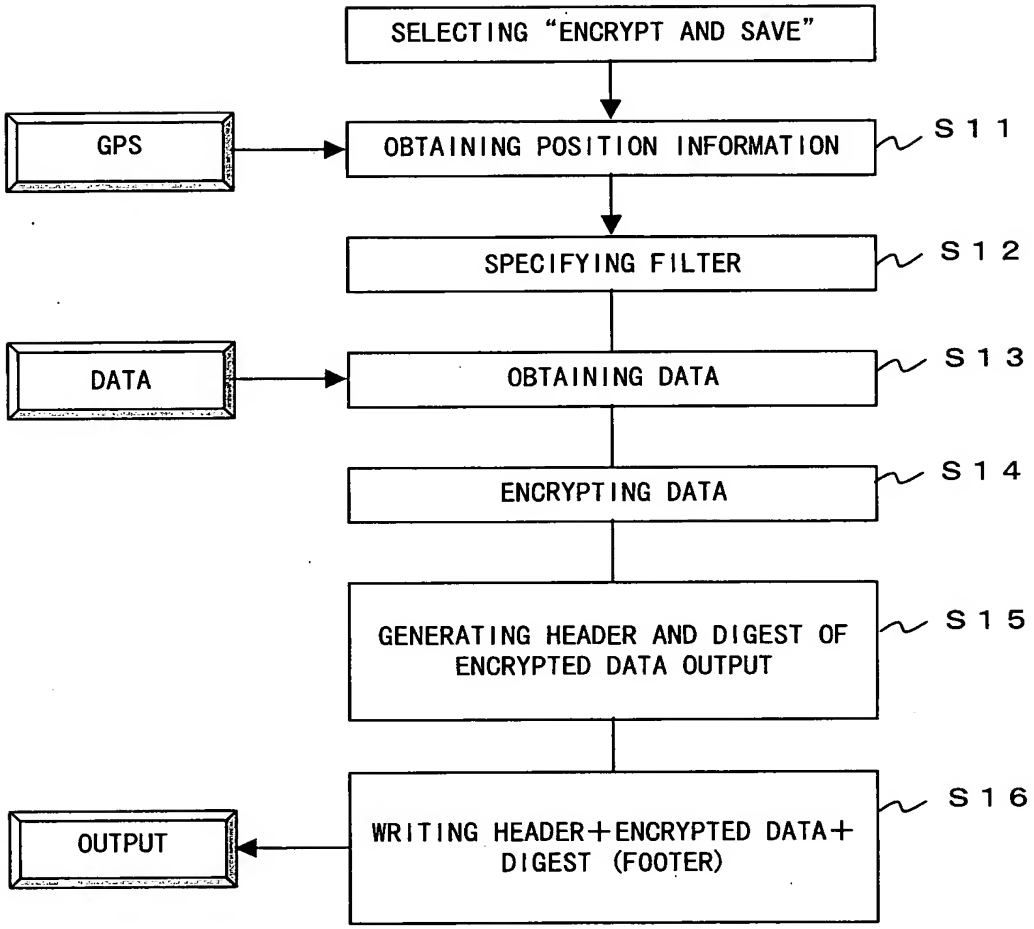
SELECTING "ENCRYPT AND SAVE"
GPS
OBTAINING POSITION INFORMATION
S11
SPECIFYING FILTER
S12
DATA
OBTAINING DATA
S13
ENCRYPTING DATA
S14
GENERATING HEADER AND DIGEST OF ENCRYPTED DATA OUTPUT
S15
OUTPUT
WRITING HEADER+ENCRYPTED DATA+ DIGEST (FOOTER)
S16

FIG. 4

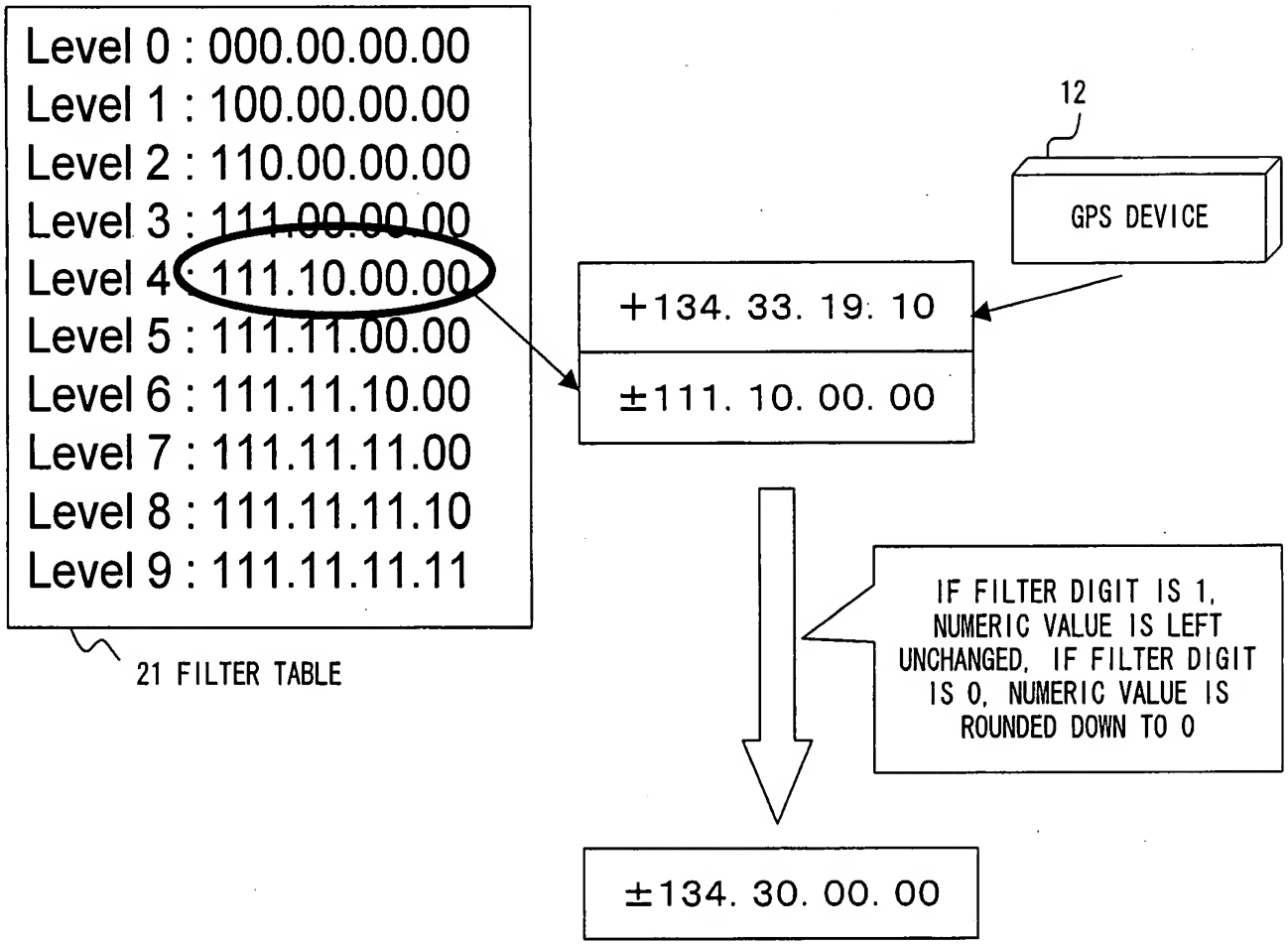
Level 0 : 000.00.00.00
Level 1 : 100.00.00.00
Level 2 : 110.00.00.00
Level 3 : 111.00.00.00
Level 4 : 111.10.00.00
Level 5 : 111.11.00.00
Level 6 : 111.11.10.00
Level 7 : 111.11.11.00
Level 8 : 111.11.11.10
Level 9 : 111.11.11.11
21 FILTER TABLE
12
GPS DEVICE
+134. 33. 19. 10
±111. 10. 00. 00
IF FILTER DIGIT IS 1, NUMERIC VALUE IS LEFT UNCHANGED, IF FILTER DIGIT IS 0, NUMERIC VALUE IS ROUNDED DOWN TO 0
±134. 30. 00. 00

FIG. 5

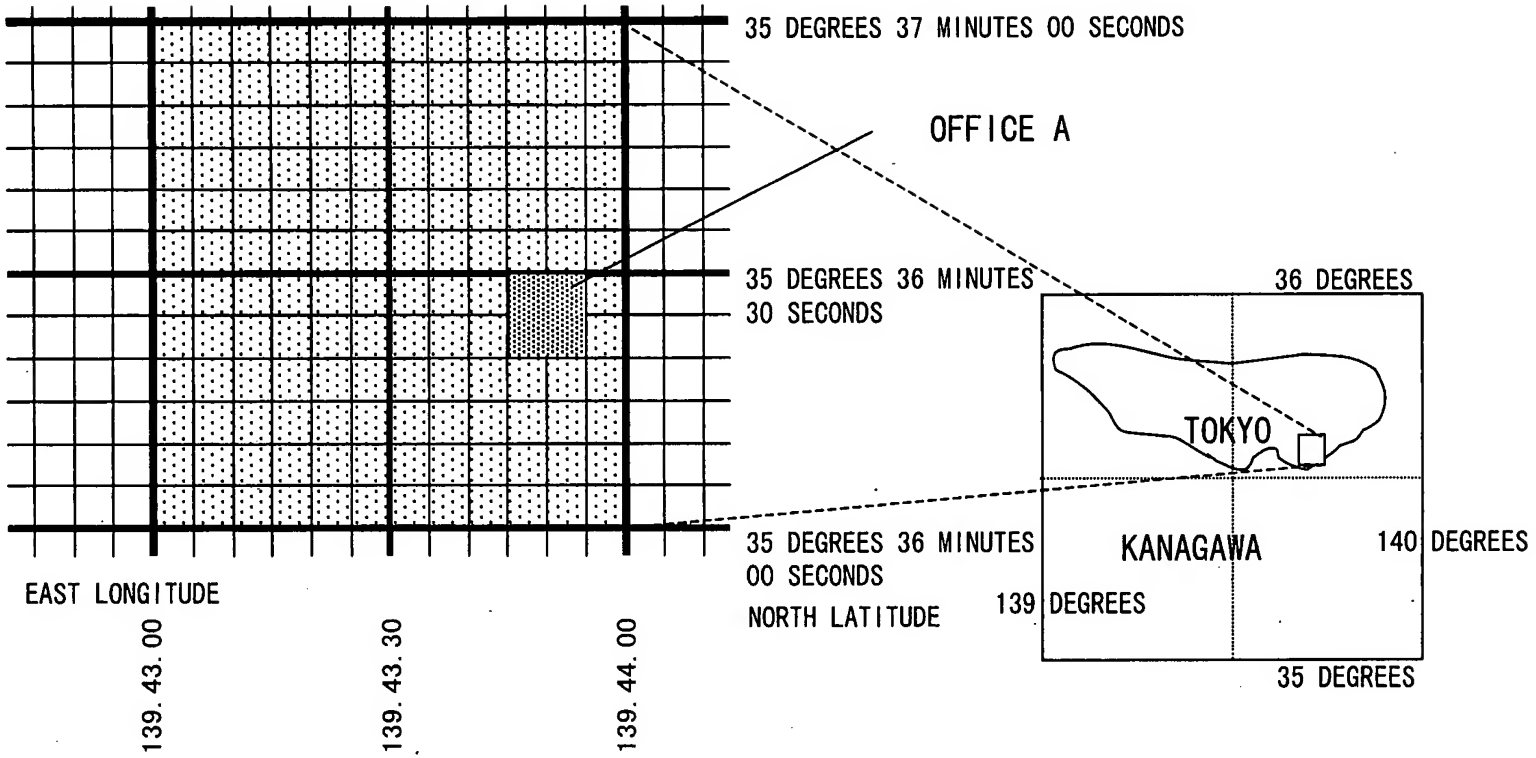
35 DEGREES 37 MINUTES 00 SECONDS
OFFICE A
35 DEGREES 36 MINUTES
30 SECONDS
36 DEGREES
TOKYO
KANAGAWA
140 DEGREES
35 DEGREES 36 MINUTES
00 SECONDS
NORTH LATITUDE
139 DEGREES
35 DEGREES
EAST LONGITUDE
139. 43. 00
139. 43. 30
139. 44. 00

FIG. 6

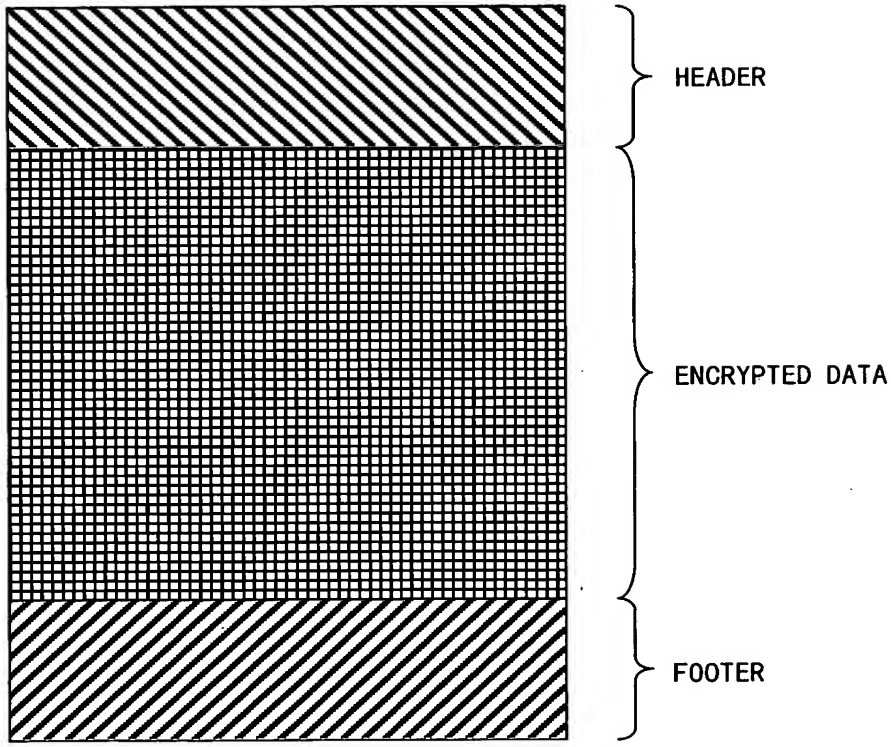

FIG. 7

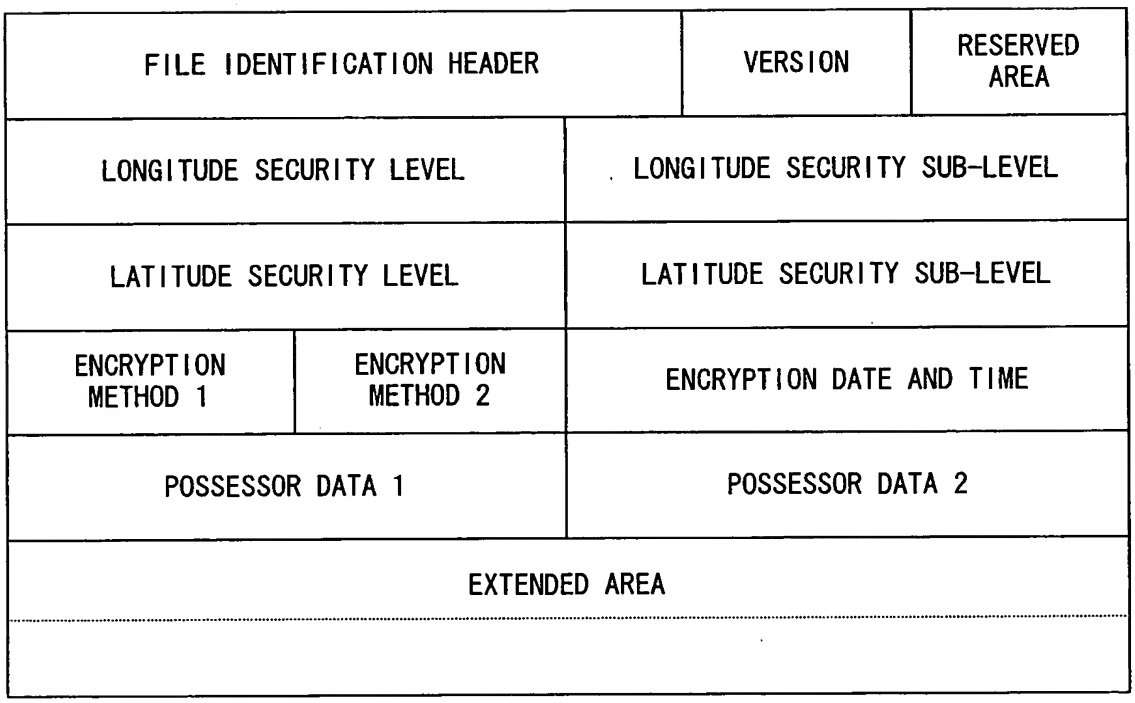
FILE IDENTIFICATION HEADER
VERSION
RESERVED AREA
LONGITUDE SECURITY LEVEL
LONGITUDE SECURITY SUB-LEVEL
LATITUDE SECURITY LEVEL
LATITUDE SECURITY SUB-LEVEL
ENCRYPTION METHOD 1
ENCRYPTION METHOD 2
ENCRYPTION DATE AND TIME
POSSESSOR DATA 1
POSSESSOR DATA 2
EXTENDED AREA

FIG. 8

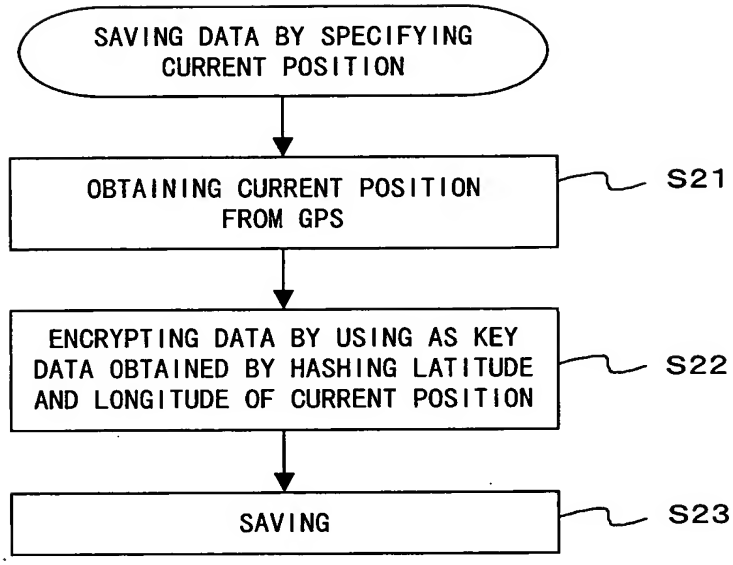
SAVING DATA BY SPECIFYING CURRENT POSITION
OBTAINING CURRENT POSITION FROM GPS
S21
ENCRYPTING DATA BY USING AS KEY DATA OBTAINED BY HASHING LATITUDE AND LONGITUDE OF CURRENT POSITION
S22
SAVING
S23

FIG. 9

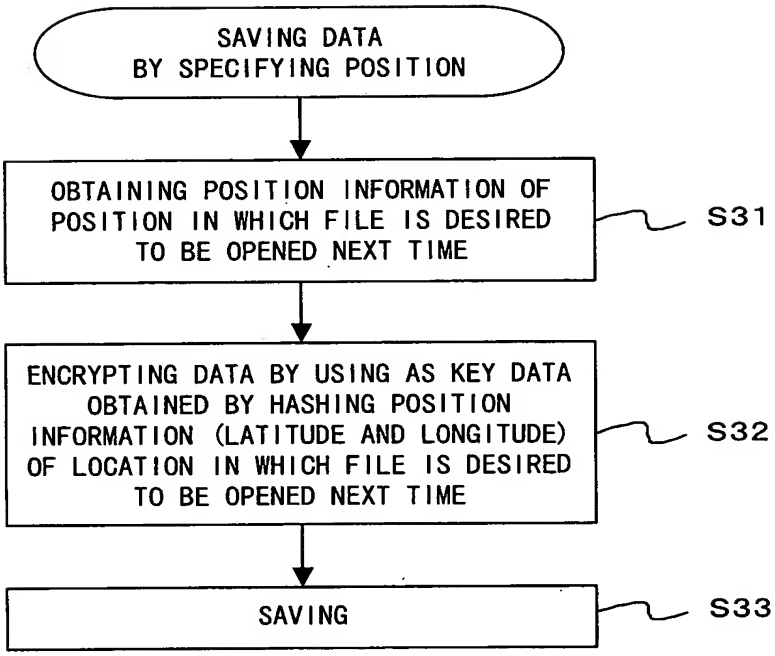
SAVING DATA
BY SPECIFYING POSITION
OBTAINING POSITION INFORMATION OF POSITION IN WHICH FILE IS DESIRED TO BE OPENED NEXT TIME
S31
ENCRYPTING DATA BY USING AS KEY DATA OBTAINED BY HASHING POSITION INFORMATION (LATITUDE AND LONGITUDE) OF LOCATION IN WHICH FILE IS DESIRED TO BE OPENED NEXT TIME
S32
SAVING
S33

FIG. 10

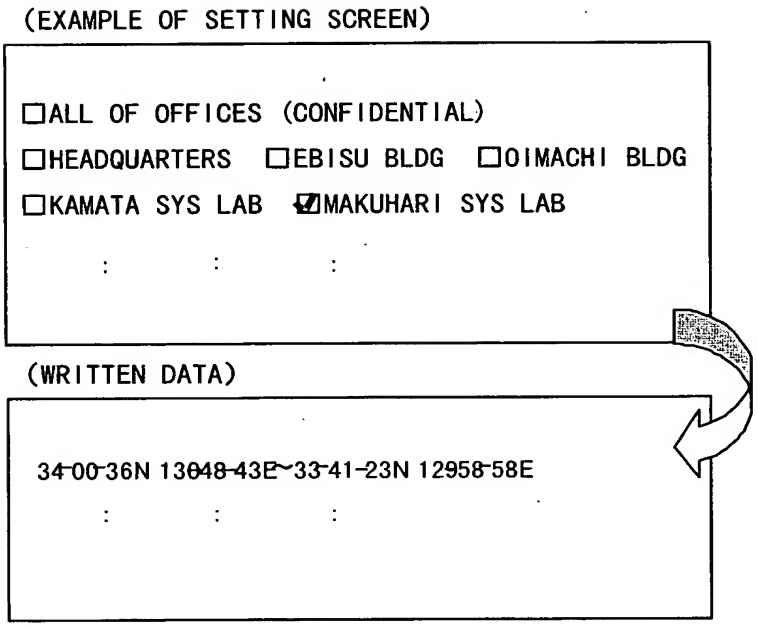
(EXAMPLE OF SETTING SCREEN)
☐ALL OF OFFICES (CONFIDENTIAL)
☐HEADQUARTERS ☐EBISU BLDG ☐OIMACHI BLDG
☐KAMATA SYS LAB ☑MAKUHARI SYS LAB
: : :
(WRITTEN DATA)
34-00-36N 13048-43E~33-41-23N 12958-58E
: : :

FIG. 11

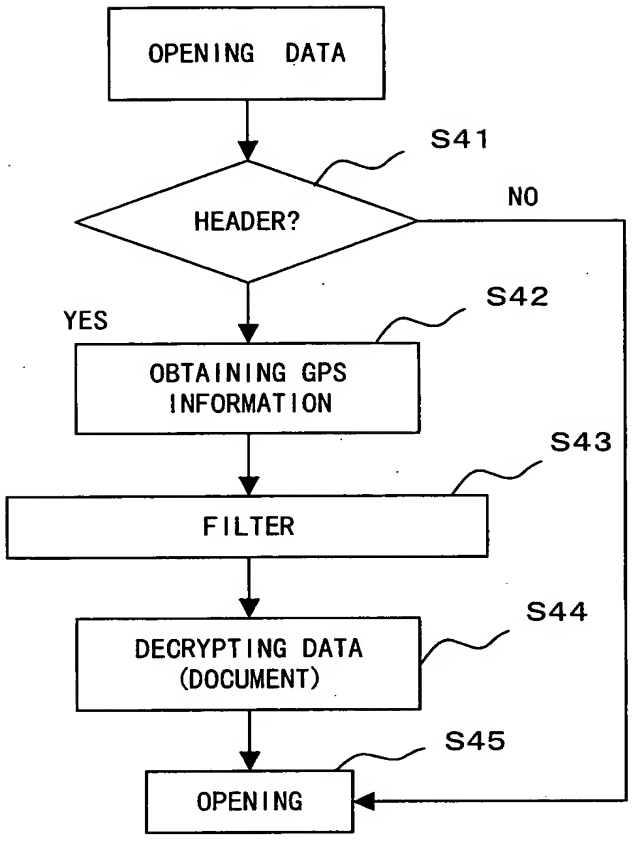
OPENING DATA
S41
HEADER?
NO
YES
S42
OBTAINING GPS INFORMATION
S43
FILTER
S44
DECRYPTING DATA (DOCUMENT)
S45
OPENING

FIG. 12

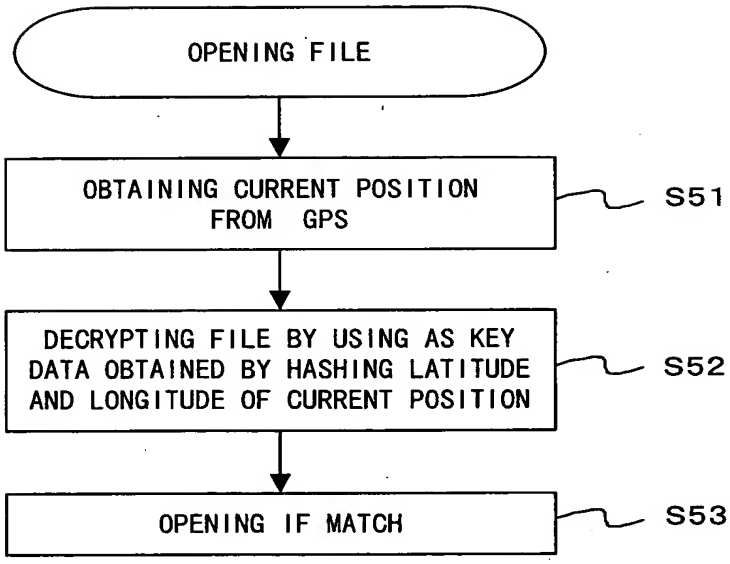
OPENING FILE
OBTAINING CURRENT POSITION FROM GPS
S51
DECRYPTING FILE BY USING AS KEY DATA OBTAINED BY HASHING LATITUDE AND LONGITUDE OF CURRENT POSITION
S52
OPENING IF MATCH
S53

FIG. 13

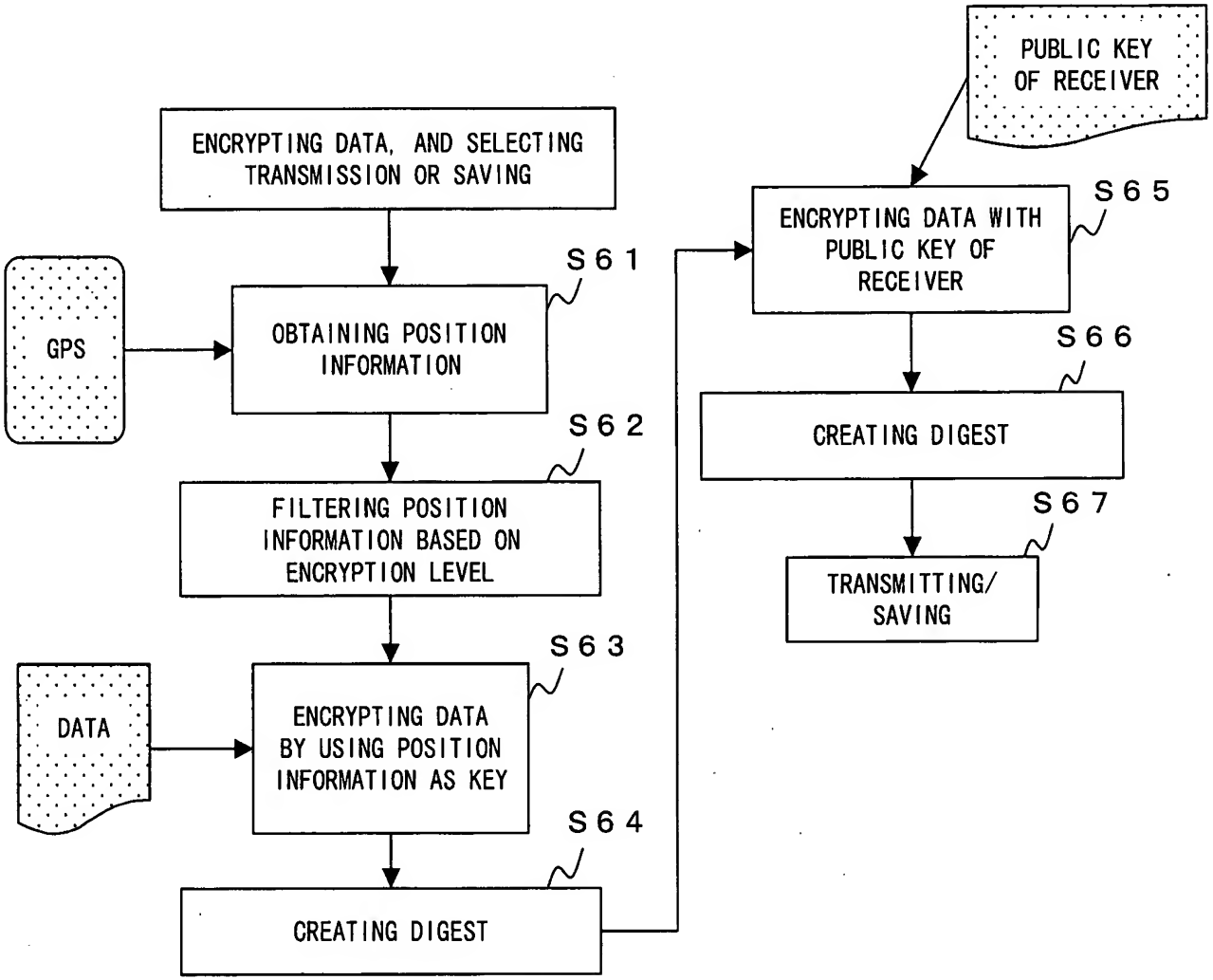
ENCRYPTING DATA, AND SELECTING TRANSMISSION OR SAVING
GPS
OBTAINING POSITION INFORMATION
S61
FILTERING POSITION INFORMATION BASED ON ENCRYPTION LEVEL
S62
DATA
ENCRYPTING DATA BY USING POSITION INFORMATION AS KEY
S63
CREATING DIGEST
S64
PUBLIC KEY OF RECEIVER
ENCRYPTING DATA WITH PUBLIC KEY OF RECEIVER
S65
CREATING DIGEST
S66
TRANSMITTING/ SAVING
S67

FIG. 14

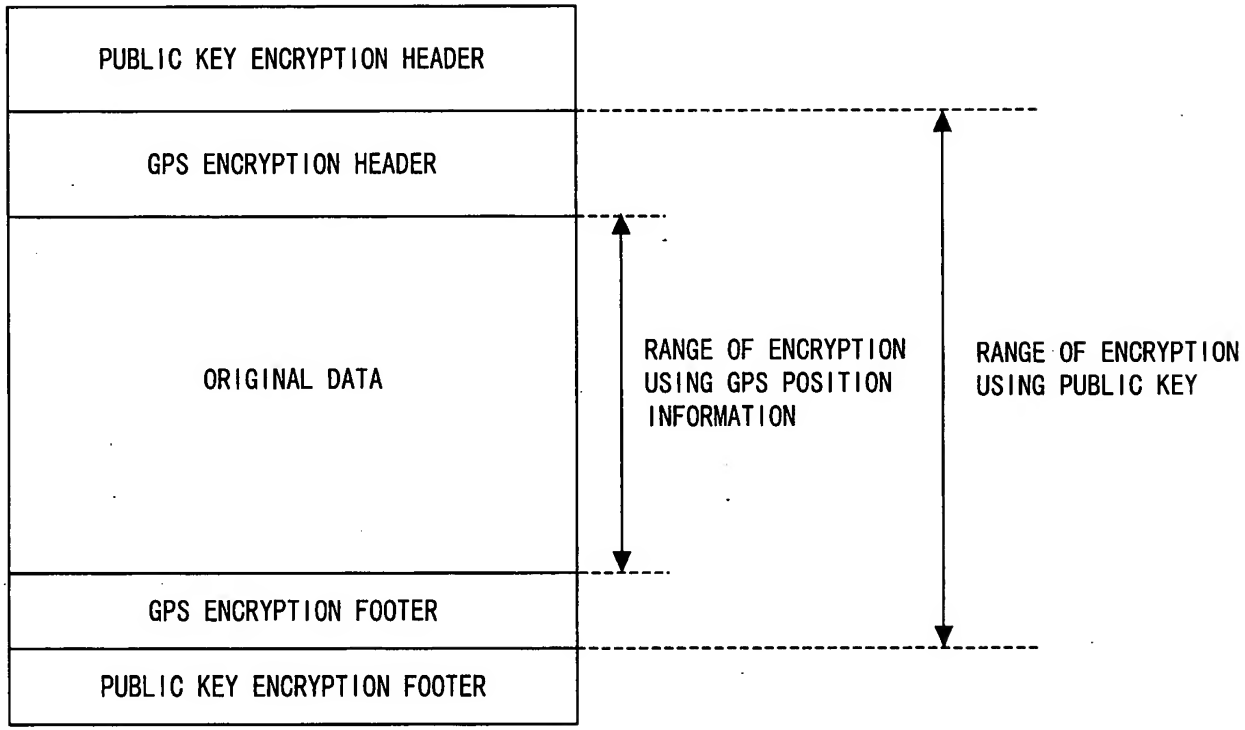
PUBLIC KEY ENCRYPTION HEADER
GPS ENCRYPTION HEADER
ORIGINAL DATA
GPS ENCRYPTION FOOTER
PUBLIC KEY ENCRYPTION FOOTER
RANGE OF ENCRYPTION USING GPS POSITION INFORMATION
RANGE OF ENCRYPTION USING PUBLIC KEY

FIG. 15

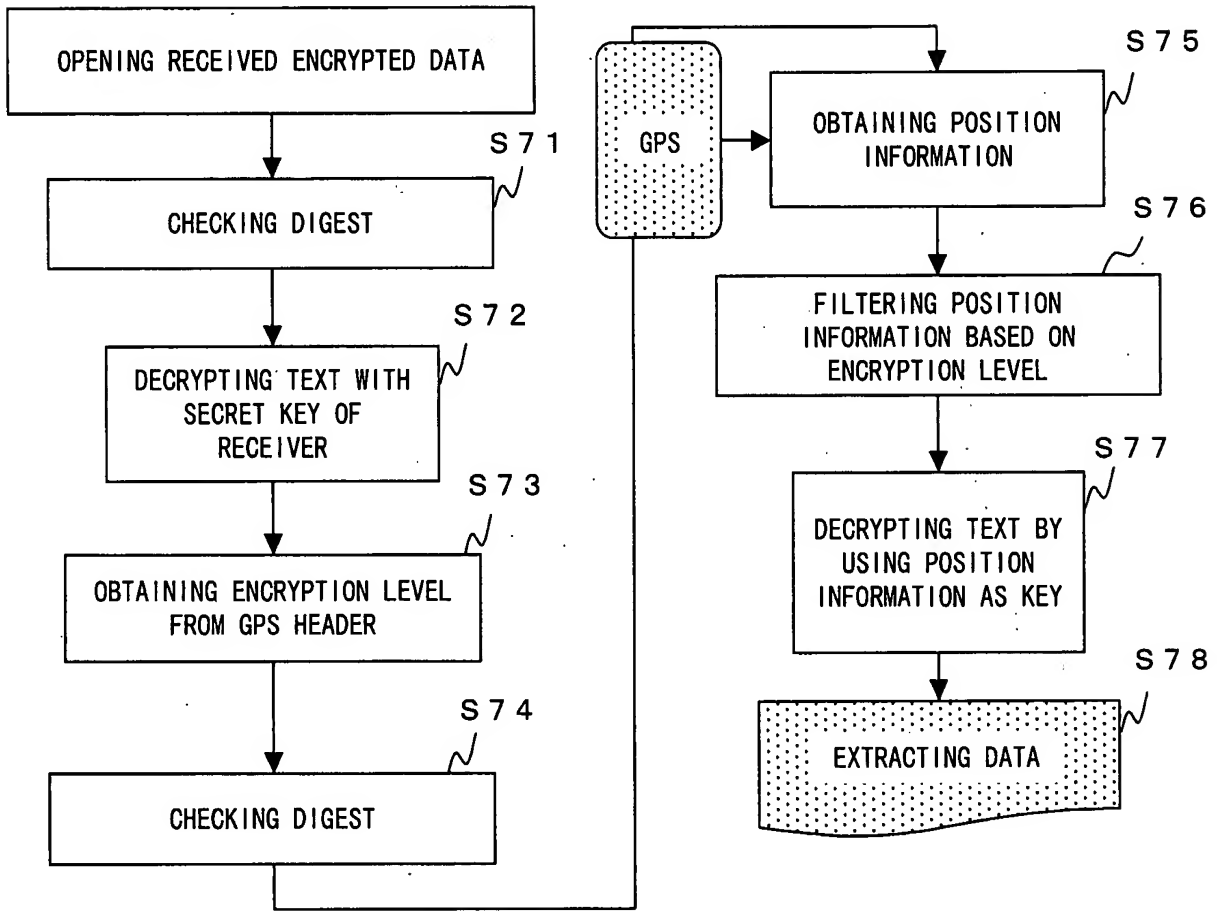
OPENING RECEIVED ENCRYPTED DATA
S71
CHECKING DIGEST
S72
DECRYPTING TEXT WITH SECRET KEY OF RECEIVER
S73
OBTAINING ENCRYPTION LEVEL FROM GPS HEADER
S74
CHECKING DIGEST
GPS
S75
OBTAINING POSITION INFORMATION
S76
FILTERING POSITION INFORMATION BASED ON ENCRYPTION LEVEL
S77
DECRYPTING TEXT BY USING POSITION INFORMATION AS KEY
S78
EXTRACTING DATA

FIG. 16

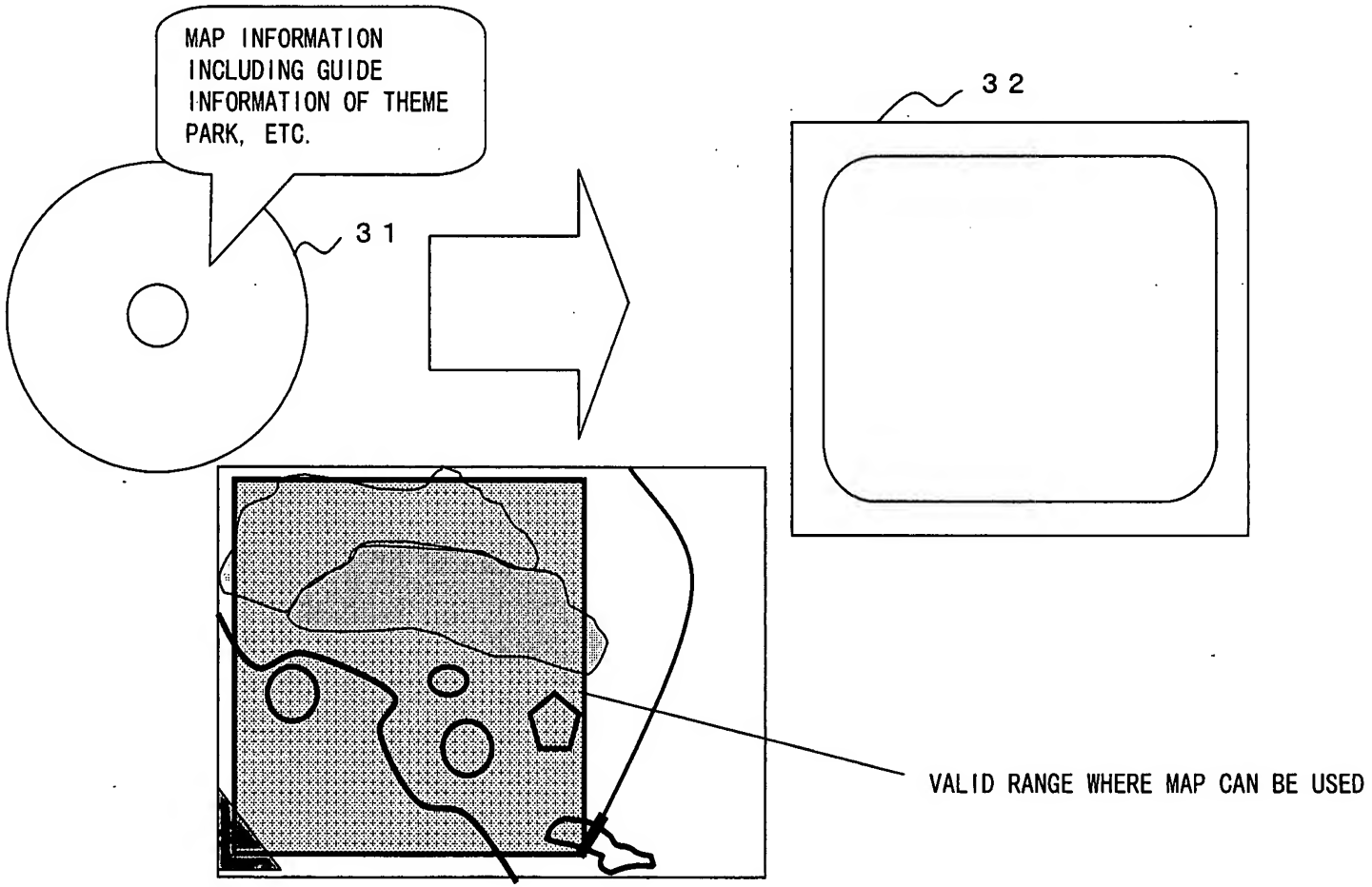
MAP INFORMATION INCLUDING GUIDE INFORMATION OF THEME PARK, ETC.
31
32
VALID RANGE WHERE MAP CAN BE USED

FIG. 17

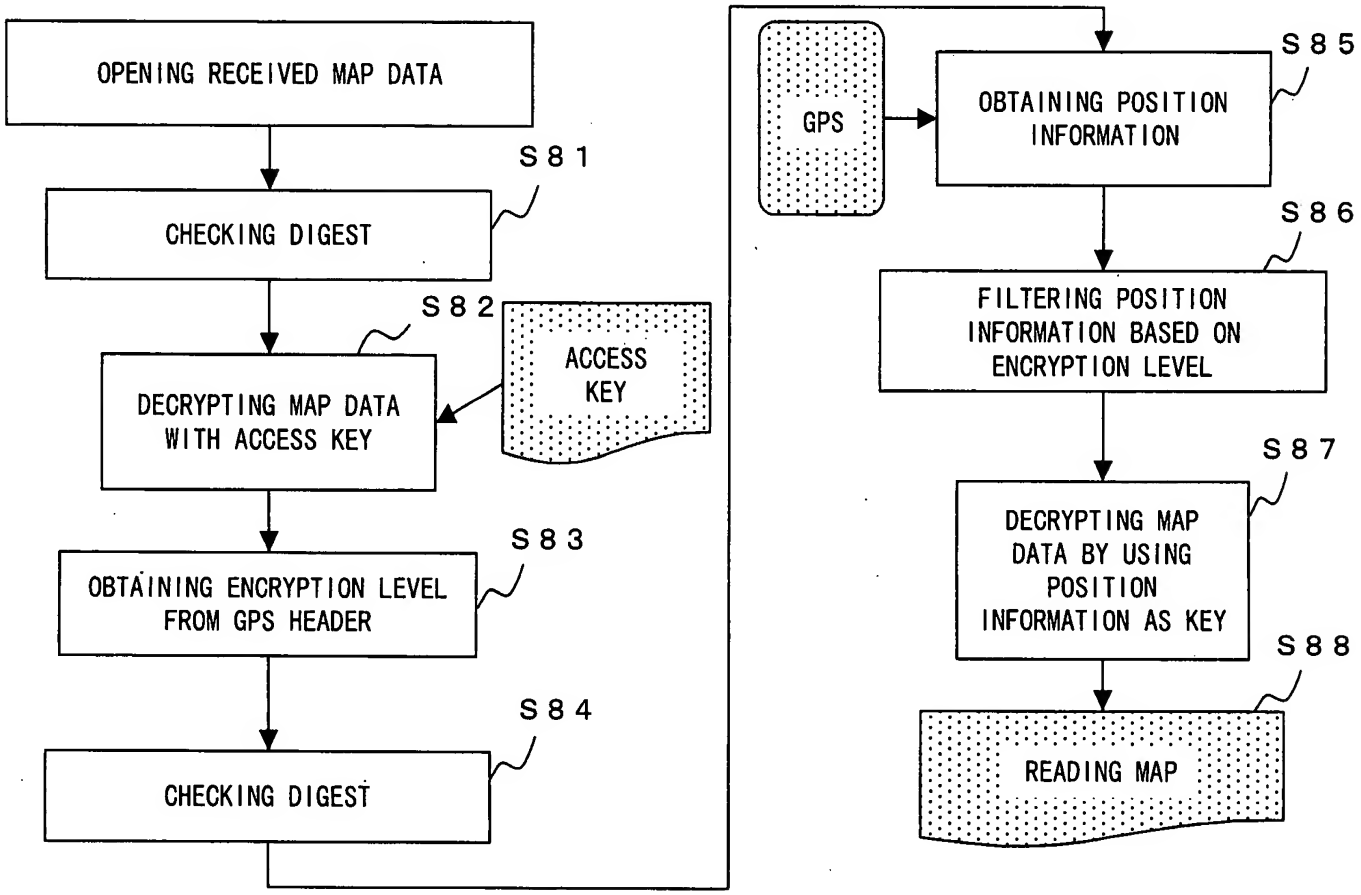
OPENING RECEIVED MAP DATA
S81
CHECKING DIGEST
S82
ACCESS KEY
DECRYPTING MAP DATA WITH ACCESS KEY
S83
OBTAINING ENCRYPTION LEVEL FROM GPS HEADER
S84
CHECKING DIGEST
GPS
S85
OBTAINING POSITION INFORMATION
S86
FILTERING POSITION INFORMATION BASED ON ENCRYPTION LEVEL
S87
DECRYPTING MAP DATA BY USING POSITION INFORMATION AS KEY
S88
READING MAP

FIG. 18

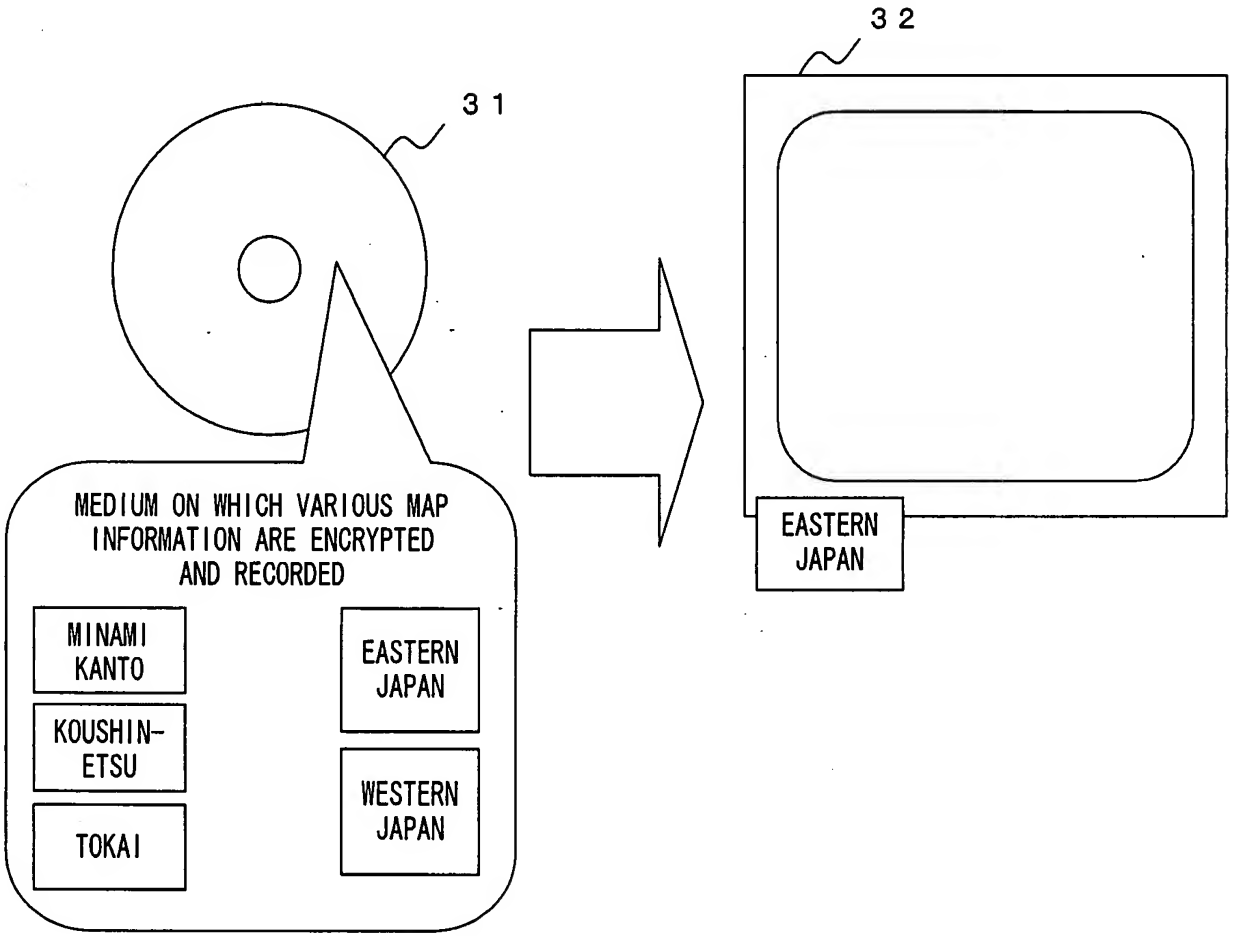
31
32
MEDIUM ON WHICH VARIOUS MAP INFORMATION ARE ENCRYPTED AND RECORDED
MINAMI KANTO
KOUSHIN-ETSU
TOKAI
EASTERN JAPAN
WESTERN JAPAN
EASTERN JAPAN

FIG. 19

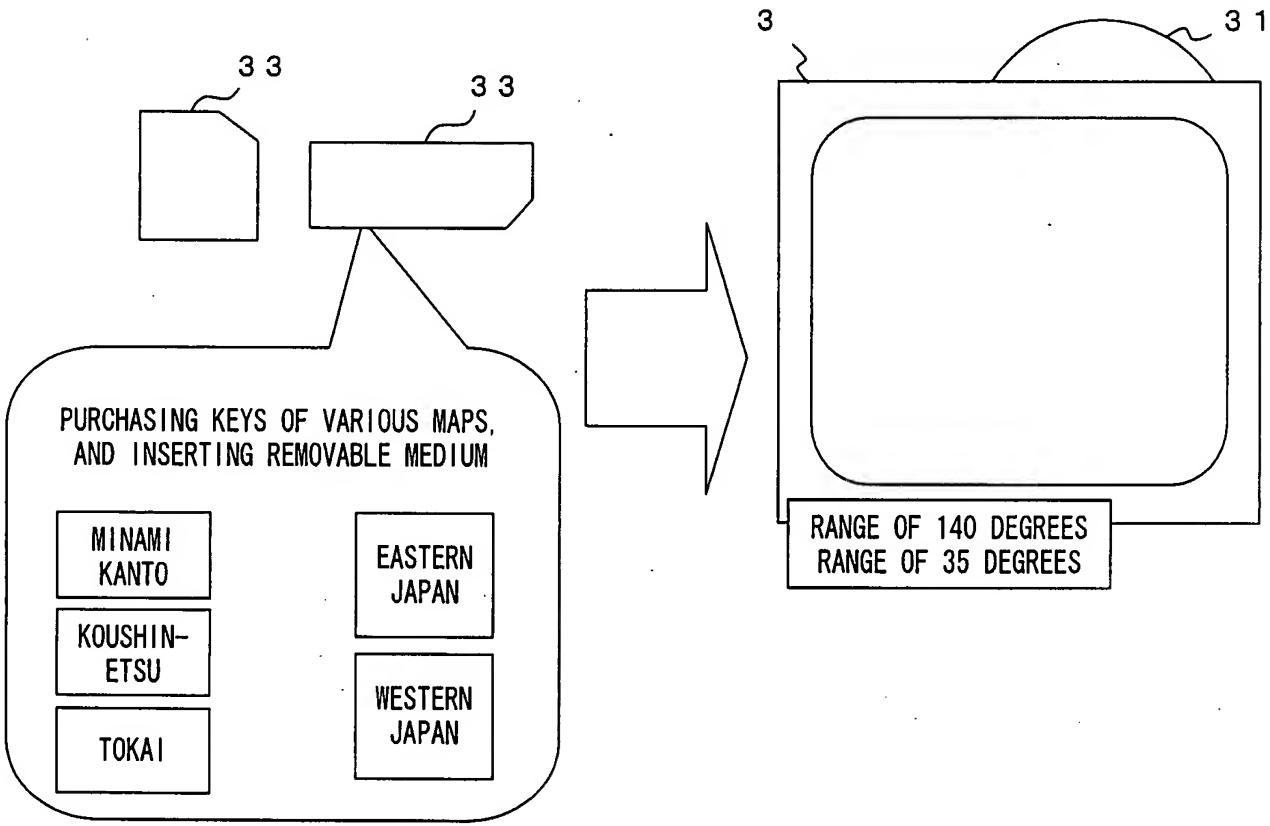
33
33
PURCHASING KEYS OF VARIOUS MAPS,
AND INSERTING REMOVABLE MEDIUM
MINAMI KANTO
KOUSHIN-ETSU
TOKAI
EASTERN JAPAN
WESTERN JAPAN
3
31
RANGE OF 140 DEGREES
RANGE OF 35 DEGREES

FIG. 20

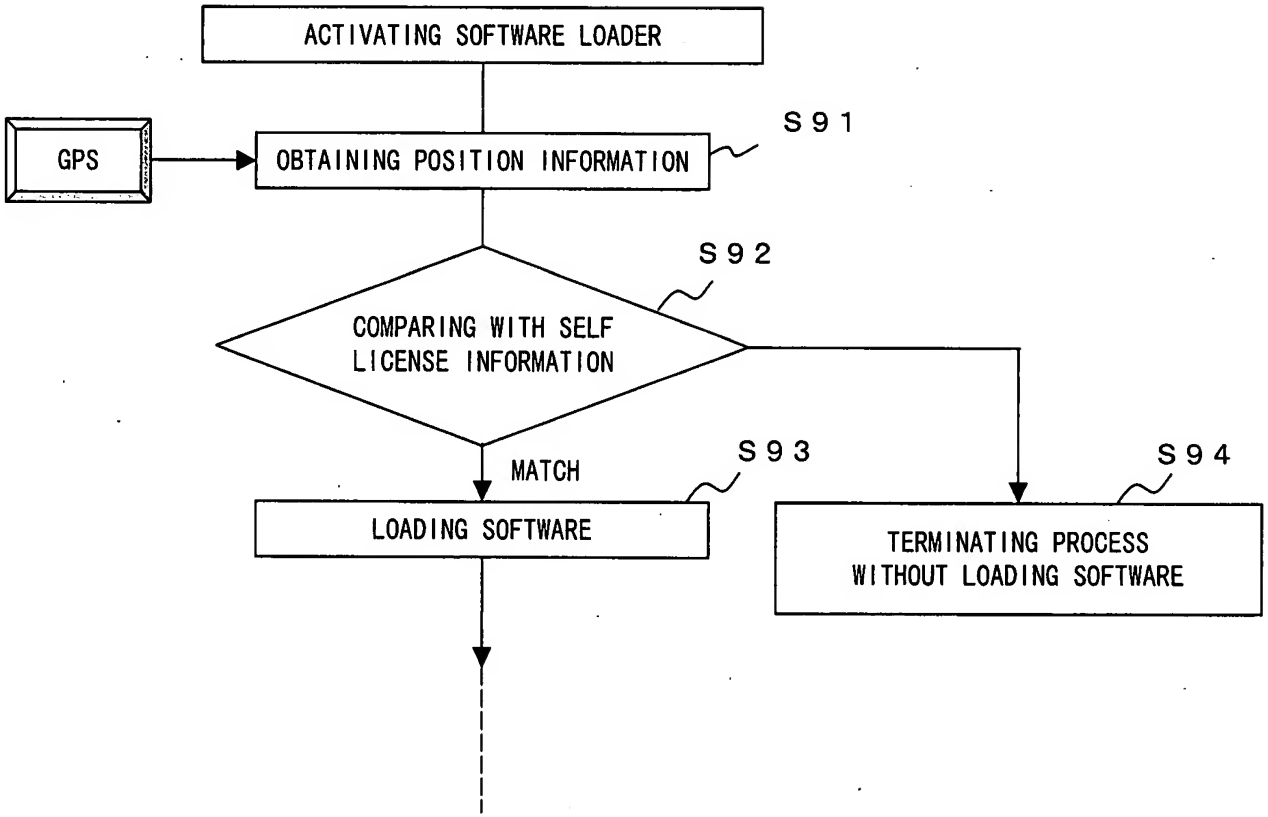
ACTIVATING SOFTWARE LOADER
GPS
OBTAINING POSITION INFORMATION
S91
S92
COMPARING WITH SELF LICENSE INFORMATION
MATCH
S93
LOADING SOFTWARE
S94
TERMINATING PROCESS WITHOUT LOADING SOFTWARE

FIG. 21

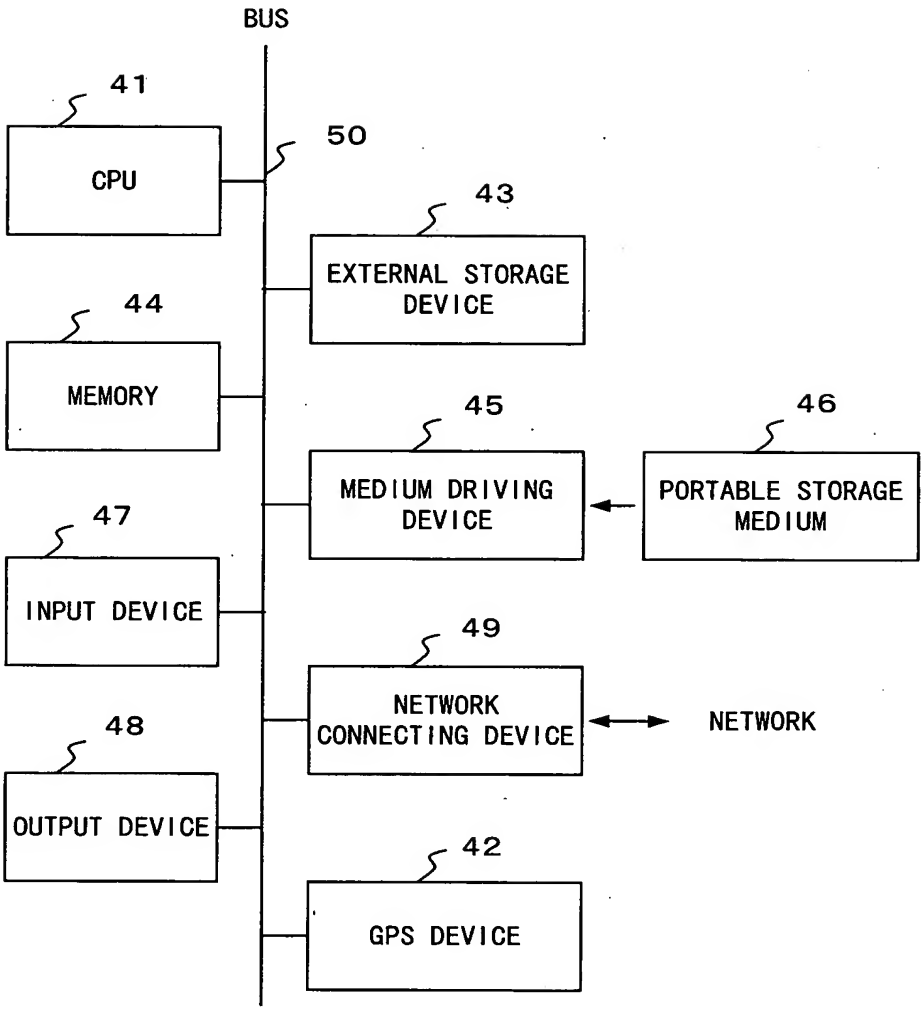
BUS
41
CPU
50
43
EXTERNAL STORAGE DEVICE
44
MEMORY
45
MEDIUM DRIVING DEVICE
46
PORTABLE STORAGE MEDIUM
47
INPUT DEVICE
49
NETWORK CONNECTING DEVICE
NETWORK
48
OUTPUT DEVICE
42
GPS DEVICE

FIG. 22